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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,102	02/13/2004	Sun Jin Yun	123056-05004443	4540

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MAYER, BROWN, ROWE & MAW LLP  
1909 K STREET, N.W.  
WASHINGTON, DC 20006

EXAMINER

DIAZ, JOSE R

ART UNIT PAPER NUMBER

2815

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/777,102	Applicant(s) YUN ET AL.	
	Examiner José R. Díaz	Art Unit 2815	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 May 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 is rejected under 35 U.S.C. 112, second paragraph since it is not clear to the examiner the final structure that applicant is trying to claim. Does the final structure, as recited in claim 1, include the temporary substrate? Please note that claim 1 removes the temporary substrate from the claimed structure. Meanwhile, the structure recited in claim 2 includes the temporary substrate.

3. Claims 2-6 are rejected due to their dependency on claim 1.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurtz et al. (US Pat. No. 5,543,349).

Regarding claim 1, Kurtz et al. teaches a substrate with a microstructure formed thereon, the substrate comprising:

a temporary substrate supporting an upper substrate (30) [see figs. 12 or 13A],  
a buffer layer (20) formed on an upper surface of the temporary substrate to have  
a plurality of shapes with air gaps (24) spaced apart from each other at regular intervals  
[see fig. 12 or 13A]; and

an adhesive layer (26) formed between the upper substrate and the buffer layer  
so that the upper substrate is adhered to the temporary substrate via the adhesive layer  
and the buffer wherein the upper substrate is a very thin substrate [see figs. 12 or 13A] ,  
and has high flexibility [please note that substrate 30 is made of silicon (see col. 5, lines  
15-18), which is the same material used by applicant to form the upper substrate (see  
claim 6 of applicant's disclosure)] and on which a device (36, 38) is formed at a process  
of manufacturing the device [see figs. 12 and 13A];

wherein the buffer layer is not a component of the device (36, 38) which is  
formed on the upper substrate (30) [see figs. 12 and 13A]; and

wherein the temporary substrate is removed from the upper substrate after the  
manufacturing process of the device [For purpose of this rejection, the limitation about  
the temporary substrate was given little patentable weight since the structure, as recited  
in claim 1, does not include the claimed temporary substrate].

Regarding claim 2, the examiner did not consider this limitation because the  
structure, as recited in claim 1, does not include the claimed temporary substrate.

Regarding claim 4, Kurtz et al. teaches that the buffer layer (20) is patterned and  
etched to form a plurality of shapes arranged in many rows with air gaps (26) being  
spaced apart from each other at regular intervals [see figs. 3 and 13B].

Regarding claim 6, Kurtz et al. teaches that the upper substrate is made of silicon [see col. 5, lines 15-18].

6. Claims 1-2 and 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Drayton et al. (US Pat. No. 5,913,134).

Regarding claim 1, Drayton et al. teaches a substrate with a microstructure formed thereon, the substrate comprising:

a temporary substrate supporting an upper substrate (14) [see fig. 1],

a buffer layer (12) formed on an upper surface of the temporary substrate to have a plurality of shapes with air gaps (26) spaced apart from each other at regular intervals [see figs. 1 and 2A]; and

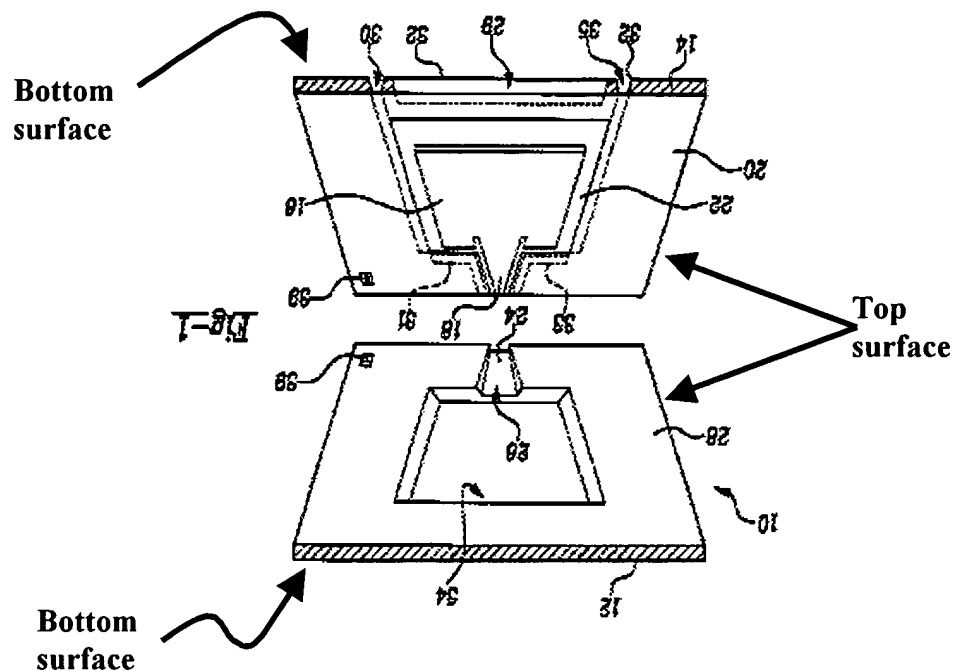
an adhesive layer (adhesive) formed between the upper substrate and the buffer layer so that the upper substrate is adhered to the temporary substrate via the adhesive layer and the buffer [see col. 5, lines 30-34] wherein the upper substrate is a very thin substrate [see fig. 1] , and has high flexibility [please note that substrate 14 is made of silicon (see col. 6, lines 12-13), which is the same material used by applicant to form the upper substrate (see claim 6 of applicant's disclosure)] and on which a device (16) is formed at a process of manufacturing the device [see fig. 1];

wherein the buffer layer is not a component of the device (16) which is formed on the upper substrate (14) [see fig. 1]; and

wherein the temporary substrate is removed from the upper substrate after the manufacturing process of the device [For purpose of this rejection, the limitation about

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the temporary substrate was given little patentable weight since the structure, as recited in claim 1, does not include the claimed temporary substrate].



Regarding claim 2, the examiner did not consider this limitation because the structure, as recited in claim 1, does not include the claimed temporary substrate.

Regarding claim 4, Drayton et al. teaches that the buffer layer (12) is patterned and etched to form a plurality of shapes arranged in many rows with air gaps (26) being spaced apart from each other at regular intervals [see figs. 1 and 2A].

Regarding claim 5, Drayton et al. teaches that the adhesive layer is made of an organic film (i.e. epoxy) [col. 5, lines 30-34].

Regarding claim 6, Drayton et al. teaches that the upper substrate is made of silicon [see col. 5, lines 15-18].

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drayton et al. (US Pat. No. 5,913,134).

Regarding claim 3, Drayton et al. teach that the buffer layer (12) include a metal layer (28) [see fig. 2B and col. 5, lines 14-16]. However, Drayton et al. fails to teach using Cu, Cu-alloy, Al or Al-alloy as the metal layer. Official Notice is taken with respect to this limitation since it is obvious to one of ordinary skill in the art to use aluminum or copper as the metal layer because aluminum and copper are very well known metals commonly used in the semiconductor art.

***Response to Arguments***

9. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new grounds of rejection.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

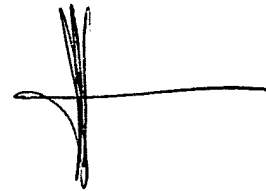
### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R. Díaz whose telephone number is (571) 272-1727. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, consisting of a stylized 'K' followed by a horizontal line.

**KENNETH PARKER**  
**SUPERVISORY PATENT EXAMINER**

José R. Díaz  
Examiner  
Art Unit 2815